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10/679,897	10/06/2003	Trevor D. Gray	2003-0253.02	3808

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EXAMINER	
VO, ANH T N	
ART UNIT	PAPER NUMBER
2861	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	**Application No.** 10/679,897	**Applicant(s)** GRAY ET AL.
	Examiner Anh T.N. Vo	**Art Unit** 2861

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *05 December 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-5,7-16,19-24 and 26-31* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5, 7, 8, 13-24, 26, 27,30 and 31* is/are rejected.

7)☒ Claim(s) *9-12,28 and 29* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

NON-FINAL REJECTION

The rejections over Lida (US Pat. 6,000,788), Cowger et al. (Us Pat. 4,794,409) and Hirano et al. (US Pat. 6,540,321) are withdrawn in view of the amendments to the claims.

CLAIM REJECTIONS

Claim Rejections - 35 USC § 112

Claim 2 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Correction or clarification is required.

In claim 2, the recitation "at least a portion" on line 1 is confusing because it is unclear if this is additional "portion" or further recitation of the previously claim "portion" on line 7 of claim 1.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless --
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

Claims 1-3, 5, 15-16, 19-20 and 24 are rejected under 35 USC 102 (e) as being anticipated by Inoue et al (US 6,837,921).

Inoue et al. disclose in Figures 1-20 an ink jet cartridge for an ink jet printer comprising:

- a vented ink reservoir (1) for containing a liquid ink therein, the vented ink reservoir defining an internal volume occupied at least in part by a semipermeable membrane (2, Figure 9) in fluid communication with a vent (9) that automatically adjusts for pressure differentials by enabling gaseous diffusion between an environment external to the vented ink reservoir (1) and the internal volume of the vented ink reservoir, while inhibiting liquid diffusion therethrough;
wherein at least a portion of the membrane (2) is angled other than parallel with respect to an operating level of the liquid ink within the tank (1) and is in contact with ink (Figure 19);
wherein at least a portion (the highest end) of the semipermeable membrane (2, Figure 19) is adapted to be above a highest level of the liquid ink within the internal volume of the vented ink reservoir (1) when the reservoir is full (Figure 18);
wherein the semipermeable membrane (2) is operatively coupled to the ink reservoir (1) by ultrasonic welding (impulse sealing); and
wherein the semipermeable membrane (48) defines a non-circular gaseous throughput (Figure 19).

Claim Rejections - 35 U.S.C. § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 4, 7 and 22-23 are rejected under 35 USC 103 (a) as being unpatentable over Inoue et al (US 6,837,921) in view of Cowger et al (US 5,047,790).

Inoue et al discloses in Figures 1-20 an ink cartridge comprising all of the limitations of the claimed invention as stated above but does not disclose that the membrane (2) includes polytetrafluoroethylene and the cross-sectional area for gas throughput ranges from between about 0.5 cm2 to about 6cm2.

Cowger et al suggests in Figure 2 a ink tank comprising a semipermeable membrane (30) made of polytetrafluoroethylene for preventing the ink from leaking to air hole, see lines 34-41, column 2.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to employ the polytetrafluoroethylene in the cartridge of Inoue et al as suggested by Cowger et al. for the purpose of preventing the ink from leaking to the air hole.

With regard to claims 7 and 23, although Inoue et al does not specify that the cross-sectional area for gas throughput ranging from between about 0.5 cm2 to about 6 cm2; however, a skilled artisan realizes that the cross-sectional area of the membrane is determined by the size of the tank and the internal pressure of ink. Thus, selecting the optimum value for the cross-sectional area as claimed is considered to be a matter of a mechanical design expedient for an engineer. It would have been obvious to a person having skill in the art at the time the invention to select the cross-sectional area for the membrane of Inoue et al as claimed for the purpose of accommodating with the internal pressure and the size of a predetermined tank.

Claim 21 is rejected under 35 USC 103 (a) as being unpatentable over Inoue et al (US 6,837,921) in view of Seiko Epson (JP02000190522A).

Inoue et al discloses in Figures 1-20 an ink cartridge comprising all of the limitations of the claimed invention as stated above but does not disclose that the airway (9) is a serpentine passageway for gas travel.

Seiko suggests in Figures 1 and 7 an ink tank comprising a serpentine air passageway (21, 2, 23) position on a lid (20) for preventing the evaporation of ink, see the Abstract.

It would have been obvious to a person having skill in the art at the time the invention was made to incorporate the serpentine air passageway on a lid into the cartridge of Inoue et al as suggested by Seiko for the purpose of preventing the evaporation of ink.

Claims 1-5, 8, 15-16, 19-20, 22, 24 and 26 are rejected under 35 USC 103(a) as being unpatentable over Baker et al (US 4,771,295) in view of Inoue et al (US 6,837,921).

Baker et al. disclose in Figure 2 an ink jet cartridge for an ink jet printer comprising:

- a cap body (50) adapted to be mounted to an ink to provide a vented ink reservoir, the cap body and ink tank define an interior volume available for ink;
- a semipmeable membrane (82, 84) covering a vent (70, 72);

wherein the semipermeable membrane (82,84) mode of polytetrafluoroethylene is operatively coupled to the ink reservoir (1) by ultrasonic welding (impulse sealing); and

wherein the semipermeable membrane (82, 84) defines a non-circular gaseous throughput.

However, Baker et al does not that the membrane (82, 84) is angled so that the ink contacts the membrane.

Nevertheless, Inoue et al suggests in Figure 19 an ink tank comprising an angled membrane
(2) at the corner of the ink tank for regulating air within the tank into contact with the membrane in a sure manner, see lines 28-31, column 2.

It would have been obvious to a person having skill in the art at the time the invention was made to place an angled membrane at the corner of the lid of Baker et al as suggested by Inoue et al for the purpose of regulating air within the tank into contact with the membrane in a sure manner.

Claims 7, 14, 21 and 23 are rejected under 35 USC 103 (a) as being unpatentable over Baker et al (US 4,771,295) in view of Inoue et al (US 6,837,921) and further view of Seiko Epson (JP02000190522A).

Baker et al in view of Inoue et al discloses an ink cartridge comprising all of the limitations of the claimed invention as stated above but does not disclose that the cross-sectional area for gaseous throughput ranges from between about 0.5 cm2 to about 6cm2, and the airway (70, 72) is a serpentine passageway for gas travel.

Seiko suggests in Figures 1 and 7 an ink tank comprising a serpentine air passageway (21, 2, 23) position on a lid (20) for preventing the ink from evaporating, see the Abstract.

It would have been obvious to a person having skill in the art at the time the invention was made to incorporate the serpentine air passageway on a lid into the cartridge of Baker at al as suggested by Seiko for the purpose of preventing the ink from evaporating.

With regard to claims 7 and 23, although Baker et al does not specify that the cross-sectional area for gaseous throughput ranging from between about 0.5 cm2 to about 6cm2; however, a skilled artisan realizes that the cross-sectional area of the membrane is determined by the size of the tank and the internal pressure of ink. Thus, selecting the optimum value for the cross-sectional area as claimed is considered to be a matter of a mechanical design expedient for an engineer. It would have been obvious to a person having skill in the art at the time the invention to select the cross-sectional area for the membrane of Baker et al as claimed for the purpose of accommodating with the internal pressure and the size of a predetermined tank.

Claims 13 and 27 are rejected under 35 USC 103 (a) as being unpatentable over Baker et al (US 4,771,295) in view of Inoue et al (US 6,837,921) and further view of Cowger et al (5,047,790) and further in view of Tajima et al (US 6,250,752).

Baker et al in view of Inoue et al and Seiko discloses an ink cartridge comprising all of the limitations of the claimed invention as stated above but does not disclose that the cap includes an ink inlet as recited in claim 13 and a filter conduit as recited in claim 27.

Nevertheless, Cowger et al suggests in Figure 2 a cap body (20) for an ink cartridge having an ink inlet (44) for refilling the cartridge from an inherent ink supply source but does not disclose a filter conduit provided between an ink source and the ink reservoir.

Tajima et al suggests in Figure 4 comprising a filter conduit (106) for removing dust without generating bubbles, see lines 15-20 and 48-55, column 2.

It would have been obvious to a person having skill in the art at the time the invention was made to employ the ink inlet the ribs and the filter in the modified cartridge of Baker et al as suggested by Cowger et al for the purpose of refilling the cartridge and the filter conduit in the modified cartridge of Baker et al as suggested by Tajima et al for the purpose of removing dust without generating bubbles.

Claims 30-31 are rejected under 35 USC 103 (a) as being unpatentable over Baker et al (US 4,771,295) in view of Inoue et al (US 6,837,921) and further view of Haldorsen (US 6,454,387).

Baker et al in view of Inoue et al discloses an ink cartridge comprising all of the limitations of the claimed invention as stated above but does not disclose that the cap body comprise pins adapted to align the cap body with respect to the ink tank, and the cap body and the ink include a channel and corresponding rib.

Haldorsen suggests in Figures 4-6 a cap body comprising pins (50) for aligning the cap body (22) with the tank (20), and the cap body (22) and the ink tank (20) also include a channel (44) and ribs (40, 46) for preventing ink from leaking, see lines 10-25, column 1.

It would have been obvious to a person having skill in the art at the time the invention was made to incorporate the pins, the channel and the ribs as suggested by Haldorsen in the cartridge of Baker et l for the purpose of aligning the cap and preventing the ink from leakage.

Response to Applicant's Arguments

The applicant argues at page 8 of the amendment that Hirano fails to suggest that the gas-permeable membrane (48) is angled. The argument is persuasive. However, this limitation is suggested in the Inoue et al reference as stated above.

The applicant argues at page 9 that the membrane of Hirano is not contacted with ink. The argument is persuasive. However, this limitation is suggested in the Inoue et al reference as stated above.

The applicant's arguments over Lida and, Cowger et al. (Us Pat. 4,794,409) are persuasive without traverse.

Allowable Subject Matter

Claim 9 is allowable if rewritten to include all of the limitations of the base claim and any intervening claims. This claim would be allowable because the prior art references do not disclose that an inkjet cartridge comprising the cap that includes a raised hump providing a space adapted to trap gas therein above a highest level of liquid ink within the vented ink reservoir; and at least a portion of the semipermeable membrane extends into the space provided by the raised hump in the combination as claimed.

Claim 10 is allowable if rewritten to include all of the limitations of the base claim and any intervening claims. This claim would be allowable because the prior art references do not disclose that an inkjet cartridge comprising a bottom surface of the cap partially defining the internal volume includes a downwardly extending closed wall seating the semipermeable membrane thereto to define a gaseous cavity within the internal volume in the combination as claimed.

Claims 11-12 are allowable if rewritten to include all of the limitations of the base claim and any intervening claims. This claim would be allowable because the prior art references do not disclose that an inkjet cartridge comprising a bottom surface of the cap includes a downwardly extending closed wall to which the semipermeable membrane is mounted thereto to define a gaseous cavity within the internal volume; and a top surface of the cap includes a humped portion corresponding to a raised space within the bottom surface of the cap adapted to be occupied by a trapped gas, where at least a portion of the semipermeable membrane is in gaseous communication with the trapped gas in the combination as claimed.

Claims 28-29 are allowable if rewritten to include all of the limitations of the base claim and any intervening claims. This claim would be allowable because the prior art references do not disclose that an inkjet cartridge comprising the cap body further includes a raised space in fluid communication with the semipermeable membrane, the raised space adapted to trap a volume of gas above a highest level of liquid ink within the vented ink reservoir in the combination as claimed.

CONCLUSION

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Anh Vo whose telephone number is (571) 272-2262. The examiner can normally be reached on Tuesday to Friday from 9:00 A.M.to 7:00 P.M..

The fax number of this Group 2861 is (571) 273-8300.

ANH T.N. VO
PRIMARY EXAMINER
July 9, 2006